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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY  
WT Docket No. 99-168

In the Matter of

Service Rules for the 746-764 and  
776-794 MHz Bands, and  
Revisions to Part 27 of the  
Commission's Rules

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COMMENTS OF  
THE HARRIS CORPORATION

**Introduction**

The Harris Corporation hereby submits comments in response to the Commission's Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding.<sup>1</sup> Harris directs its comments to the proposed emission mask limiting out-of-band signal levels in order to protect communications on other channels. Harris supports the specifics of the Commission's proposed rule, and urges the Commission both to adopt its rule as proposed and to extend it to all digital television broadcast transmitters that operate in the range of television channels 2-69.

**Statement of Interest**

The Harris Corporation is a global communications company with worldwide sales of \$4 billion. Harris leads the industry in designing and manufacturing digital broadcast transmitters and related equipment, and supplies transmitters throughout the world. Harris also supplies transmission and reception equipment to a wide variety of other spectrum-based services, and has the substantial technical expertise necessary to design systems capable of ensuring effective

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<sup>1</sup> Notice of Proposed Rulemaking in WT Docket No. 99-168, FCC 99-97 (released June 3, 1999) (*Notice*).

communication. Harris therefore supports rules that promote spectrum integrity and minimize interference to other stations and services.

### **The Proposed Emission Mask Will Protect Communications on Other Channels**

Regardless of the channel on which a digital broadcast transmitter operates, filtering is necessary to reduce emissions outside of the licensed bandwidth. For broadcast transmitters of substantial power, the cost of filters is substantial. The emission mask proposed in this proceeding,  $43 + \log P$  watts or 80 dB, whichever is less,<sup>2</sup> is identical to that used in a number of other services, such as the Public Land Mobile Service<sup>3</sup> and the Domestic Public Fixed Services.<sup>4</sup> As the Commission notes, this rule would cap the out-of-band emissions at -80 dB, and the equation automatically adjusts for power differences and allows a less strict standard for lower power operations.

The Commission also proposes to require 110 dB suppression of second harmonic emissions from transmitters operating on channels 65-67 because these emissions fall within the 1559 - 1605 MHz band used by navigation satellites, such as GPS. This level of suppression is extremely strict, and indeed is below the level that can be measured reliably with laboratory test equipment because it is below the noise level of even the most advanced test instruments.<sup>5</sup> Nevertheless, in a previous filing Harris agreed that the -110 dB level could be reached at these

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<sup>2</sup> Notice at para. 76.

<sup>3</sup> See 47 C.F.R. § 22.359(a)(3), (b)(1)(iii), (b)(2)(iii).

<sup>4</sup> See 47 C.F.R. § 21.106(a)(1)(iii), (a)(2)(ii).

<sup>5</sup> See Advanced Television Technology Center, An Evaluation of the FCC Proposed RF Mask for the Protection of Adjacent Channel NTSC Signals, Document No. 96-02, note to Figure 2 (Oct. 22, 1996); and An Evaluation of the FCC FT Mask for the Protection of the DTV Signals From Adjacent Channel DTV Interference, Document No. 97-06, note to figure 2 (July 17, 1997).

frequencies by using a notch filter, and does not object to this level of suppression being adopted in this proceeding.

**Applying the Proposed Rule to Digital Television Generally Would Provide Adequate Protection and Lower the Cost of Digital Transmitters**

As the Commission recognizes in the *Notice*,<sup>6</sup> currently the digital television emission mask requirement is for 110 dB suppression for all spectrum more than 6 megahertz from the channel edge. As the Commission also notes, Harris has asked the Commission to relax the 110 dB attenuation requirement in adjacent bands while continuing to protect the harmonic GPS bands to the -110dB level.<sup>7</sup> The rules proposed in this proceeding for all new licensees are consistent with Harris' request, and should be extended to channels 2-59 as well.

Adopting the proposed emission mask for all digital operations would provide protection equivalent to that required of other services, and more protection for the GPS bands than other transmitters. Harris estimates that this approach will result in a 10 to 20 percent cost savings for broadcasters in their purchase of digital television filter systems. Moreover, the cost savings will be substantially more for VHF channels 2-6, where the filters alone may be physically larger than a station's transmitter and power supply.

In addition to significant cost savings, replacing the current emission mask requirement with the proposed rule for all transmitters would eliminate the potential for materials shortages because building filters to meet the current specification requires use of special materials. These materials are not required to meet the emission mask requirement proposed in this proceeding.

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<sup>6</sup> *Supra* note 1 at para. 75.

<sup>7</sup> *Id.* at fn. 145.

**The Proposed Emission Mask Rule Will Promote the Commission's Objectives for a Rapid Digital Transition.**

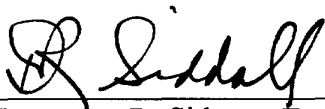
Finally, we note that the cost savings here are significant, especially for small broadcasters. These cost savings would create an incentive for a faster buildout of the digital television infrastructure and a more rapid transition overall. Given that the more costly alternative results in little to no additional protection as a practical matter, we believe it to be in the public interest to apply the emission mask requirement proposed in this proceeding to all television transmitter generally.

**Conclusion**

For the above reasons, Harris supports adoption of the emission mask rule proposed in the *Notice*, and requests that it be applied to all digital broadcast transmitters.

Respectfully Submitted,

**HARRIS CORPORATION**

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